



IB MYP Year 5

Year 10 Mathematics

Assessment #2



THE COMPANY REPORT

Unit Question: How will we find a company which will grow in the future?
Area of Interaction: HI Teachers: Ms. Luk & Mr. Slosberg Name: _____
Start Date: October 29, 2013 End Date: January 15, 2013 Time Allowed: 3 months
Concept Statement: Growth can take different forms and compound growth is a powerful force to make you richer.

The objective of this task is analyze a company and decide whether it is worth buying.

IN YOUR BOOK:

- ◆ **New Trends Mathematics**, chapters S5B8, S6#1, S4B10, S6#2 on AP/GP and linear and exponential equations

INSTRUCTIONS:

- ◆ Read the **instructions** and **rubric** carefully.
- ◆ Show all **steps** and proper **units**.
- ◆ Submit **your own work**. Any copying or other cheating, will automatically receive a 0.
- ◆ You are allowed to use non-electronic **dictionary**.
- ◆ **Computers** are allowed.

ASSESSMENT:

- ◆ Read the criteria descriptors on the next page carefully before you start your work. This will give you a clear understanding of what is required and what a quality piece of work for this task must include. This way you give yourself the best chance of achieving the highest level in this task.
- ◆ This task assesses Criteria A, B, C, & D.

TASK:

- ◆ You are to create a report on a public company of your choice to decide whether it is worth buying. You should analyze three attributes of the company such as dividends, book value, earnings, sales, or the like. One should be modeled as an arithmetic sequence, one should be modeled as a geometric sequence, and one should be modeled as an unfamiliar function.
- ◆ You should conclude your report by deciding whether or not to buy the company. Give good reasons based on your analysis. Be sure to comment on your degree of accuracy (predict some values you haven't looked up yet and check them against the annual reports for those years using percentage error). Comment on how you would improve your model(s).

CRITERION A: KNOWLEDGE AND UNDERSTANDING

| Achievement Level | Task Specific Rubric | IBO Published Descriptor | Student's Self-Evaluation |
|----------------------------------|---|---|------------------------------|
| 0 | The student does not reach a standard described by any of the descriptors given below. | The student does not reach a standard described by any of the descriptors given below. | |
| 1–2 Simple | Find a common difference or common ratio for your first set of data. | The student generally makes appropriate deductions when solving simple problems in familiar contexts. | |
| 3–4 Complex | Find a general rule (AP or GP) for your first set of data. | The student generally makes appropriate deductions when solving more complex problems in familiar contexts. | Teacher's Final Grade |
| 5–6 Challenging | Find the sum of the sequence you created for a number of years. | The student generally makes appropriate deductions when solving challenging problems in a variety of familiar contexts. | |
| 7–8 Unfamiliar | Find an unfamiliar type of line of best fit which fits your second set of data. This should not be an AP/GP (linear/exponential) fit. | The student consistently makes appropriate deductions when solving challenging problems in a variety of contexts including unfamiliar situations. | |

CRITERION B: INVESTIGATING PATTERNS

| Achievement level | Task Specific Rubric | IBO Published Descriptor | Student's Self-Evaluation |
|-----------------------------------|---|--|------------------------------|
| 0 | The student does not reach a standard described by any of the descriptors given below. | The student does not reach a standard described by any of the descriptors given below. | |
| 1–2 Do Maths | Make a graph of your third set of data and describe any pattern you see. | The student applies, with some guidance , mathematical problem-solving techniques to recognize simple patterns. | |
| 3–4 General Rule | Suggest a general rule for your third set of data. NOTE: You should demonstrate your knowledge of both linear (AP) and exponential (GP) functions in this assessment. | The student applies mathematical problem-solving techniques to recognize patterns, and suggests relationships or general rules. | Teacher's Final Grade |
| 5–6 Test it | You based your model on several years of data. Predict the value of other years. Then check how closely your model matches reality. It is OK to predict into the past as long as you did not use those years in your original data set. | The student selects and applies mathematical problem-solving techniques to recognize patterns, describes them as relationships or general rules, and draws conclusions consistent with findings. | |
| 7–8 Prove it | Give justifications as to why your model is (or is not) accurate. | The student selects and applies mathematical problem-solving techniques to recognize patterns, describes them as relationships or general rules, draws the correct conclusions consistent with the correct findings, and provides justifications or proofs . | |

CRITERION C: COMMUNICATION IN MATHEMATICS

| Achievement level | Task Specific Rubric | IBO Published Descriptor | Student's Self-Evaluation |
|-------------------|---|---|---------------------------|
| 0 | The student does not reach a standard described by any of the descriptors given below. | The student does not reach a standard described by any of the descriptors given below. | (0-6) |
| 1-2 | The teacher cannot figure out what you are saying or doing. | The student shows basic use of mathematical language and/or forms of mathematical representation. The lines of reasoning are difficult to follow . | |
| 3-4 | Each of your steps is clear. You use the forms of representation given above and move between tables, graphs, and equations with some success. | The student shows sufficient use of mathematical language and forms of mathematical representation. The lines of reasoning are clear though not always logical or complete . The student moves between different forms of representation with some success . | Teacher's Final Grade |
| 5-6 | Your paper is clear and easy to read. It makes sense and answers most of the questions the reader might have. You move effectively between graphs, tables, and equations. | The student shows good use of mathematical language and forms of mathematical representation. The lines of reasoning are concise, logical and complete . The student moves effectively between different forms of representation. | (0-6) |

CRITERION D: REFLECTION AND EVALUATION

| Achievement level | Task Specific Rubric | IBO Published Descriptor | Student's self-evaluation |
|----------------------------------|---|---|---------------------------|
| 0 | The student does not reach a standard described by any of the descriptors given below. | The student does not reach a standard described by any of the descriptors given below. | (0-6) |
| 1-2 Real Life | How is your work in this report related to real life? | The student attempts to explain whether his or her results make sense in the context of the problem. The student attempts to describe the importance of his or her findings in connection to real life. | |
| 3-4 Degree of Accuracy | How accurate is your model compared to reality? How accurate are your predictions compared to previously unknown values? | The student correctly but briefly explains whether his or her results make sense in the context of the problem. The student describes the importance of his or her findings in connection to real life where appropriate. The student attempts to justify the degree of accuracy of his or her results where appropriate. | Teacher's Final Grade |
| 5-6 Improvements | How could you have improved your model? | The student critically explains whether his or her results make sense in the context of the problem. The student provides a detailed explanation of the importance of his or her findings in connection to real life. The student justifies the degree of accuracy of his or her results where appropriate. The student suggests improvements to his or her method where appropriate. | (0-6) |